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Microalgae biodiversity and biomass status in Qua Iboe Estuary mangrove swamp, Nigeria

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Abstract

Microalgae composition, abundance, diversity and biomass of the Qua Iboe Estuary mangrove swamp were studied. The results revealed the rich assemblage of the brackish ecosystem. Six major taxanomic classes were encountered. These were the Bacillariophyceae, Cyanophyceae, Chlorophyceae, Chrysophyceae, Euglenophyceae and Phaeophyceae. Their composition, abundance and diversity exhibits strong seasonal variation. Variations between pelagic and sedimentary habitats were also noticed. The diatoms (Bacillariophyceae) dominated the habitats. Actinoptychus undalatus, Navicula radiosa and Amphora ovalis co-dominated the pelagic water column; while the

epipellic (intertidal) and benthic (subtidal) sediments were co-dominated by A. ovalis and Actinoptychus undulatus. Analyses of the Shannon's index of general diversity (H1), McArthur-Terborgh species equitability index (E) and Simpson's index of dominance (D) of the microalgae communities revealed that A. ovalis with a mean H 1 -value of 0.25, E-value of 0.08 and D-value of 0.05 was the most prevalent genus in the mangrove ecosystem despite its uneven distribution. The densities of the microalgae communities corresponded with their biomass statuses and were seriously impacted by oil spillage. This forms the basis of concern because the estuary is associated with a high probability of major oil pollution with serious consequences for ecological stability and fisheries.

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